



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,709	09/08/2003	Kuo-Hsing Teng	67,200-1150	2302

7590 01/27/2005

TUNG & ASSOCIATES
Suite 120
838 W. Long Lake Road
Bloomfield Hills, MI 48302

EXAMINER

BUEKER, RICHARD R

ART UNIT	PAPER NUMBER
----------	--------------

1763

DATE MAILED: 01/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/658,709

Applicant(s)

TENG

Examiner

Richard Bueker

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-18 and 20 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Fukuda (5,733,375) (see Figs 1-9 and col. 4, lines 23-30) who discloses an HMDS vaporizer including a nozzle plate 4 having a plurality of nozzle openings for ejecting a plurality of gas streams against the liquid primer.

Claims 1-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda (5,733,375) taken in view of Yamaguchi (5,803,938) (Figs. 18 and 19 and col. 27, line 44 to col. 28, line 23), Martin (3,608,280) (Fig. 2) and Mikoshiba (5,755,885) (Fig. 3 and col. 6, lines 58-67). Yamaguchi and Martin teach the use of nozzle plates to supply gas to a vaporizer. Also Mikoshiba teaches that the holes in a gas supply element can be uniformly or non-uniformly arranged. If, for argument's sake, the gas injector of Fukuda were not considered to be a plate, it still would have been obvious to use a nozzle plate in Fukuda's apparatus, because Yamaguchi and Martin teach that such a plate can be successfully used to supply gas to a vaporizer.

Also, to the extent required by applicants' claims, it would have been obvious in view of Mikoshiba to use uniformly spaced holes in such a nozzles plate.

Claims 17-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda (5,733,375) taken in view of Matsuka (5,520,857) (Figs. 1-14) and in further view of Palmer (4,768,291) and Schmohl (2004/0146649). Fukuda discloses an HMDS vaporizing process using a bubbler. Matsuka discloses a different kind of vaporizer in which an inert gas in a plurality of gas streams is directed against the surface of a liquid in a tank. Matsuka teaches that his vaporizer is an improvement over a bubbler of the type used by Fukuda, particularly when the liquid to be vaporized is flammable and/or has a high vapor pressure. Palmer (paragraph bridging cols. 3 and 4) makes clear that HMDS was known in the prior art to be a particularly flammable liquid. Also, Schmohl (paragraph 48) makes clear that HMDS was known in the prior art to have a particularly high vapor pressure. Therefore, one skilled in the art would have recognized that HMDS was a type of liquid that was particularly suitable for vaporization in the vaporizer of Matsuka. It would have been obvious to substitute the surface contact vaporizer of Matsuka for the bubbler of Fukuda when vaporizing HMDS, because Matsuka teaches that his vaporizer is more desirable than a bubbler for vaporizing flammable, high vapor pressure liquids such as HMDS.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda (5,733,375) taken in view of Matsuka (5,520,857) (Figs. 1-14) and in further view of Palmer (4,768,291) and Schmohl (2004/0146649) for the reasons stated in the preceding paragraph rejection, and taken in further view of Mellet (4,704,988). The

Art Unit: 1763

particular recited pressure used to supply the gas of Matsuka is prima facie obvious in the absence of a showing of unexpected results commensurate with the limitations of claim 19. It is noted that in applicants' description of the prior art in the paragraph bridging pages 14 and 15 of their specification, they describe the choice of pressure as a results-effective variable that is generally well known and understood by one skilled in the art. Also, Mellet (col. 2, lines 20-45) teaches the factors that must be taken into account when operating a vaporizer, which include the pressure in the downstream processing chamber. Furthermore, Palmer teaches (paragraph bridging cols. 3 and 4) that HMDS priming chambers are conventionally operated at 6 Torr., which is equivalent to the 0.75 Kpa recited in applicants' claim 19. It would have been prima facie obvious to optimize the process variables such as pressure and flow rate in the vaporizer of Fukuda by taking into account the factors specifically taught by Mellet, particularly the downstream process chamber pressure as taught by Mellet.

Claims 17-18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicants' description of the prior art (applicants' Fig. 1, for example), taken in further view of Matsuka (5,520,857). It would have been obvious to one skilled in the art to provide the prior art vaporizer of applicants' Fig. 1 with plural inert gas streams because Matsuka teaches that this type of surface contact vaporizer will be improved by providing plural gas streams.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over applicants' description of the prior art (applicants' Fig. 1, for example), taken in further view of Matsuka (5,520,857) for the reasons stated in the preceding paragraph

rejection, and taken in further view of Palmer (4,768,291) and Mellet (4,704,988).

Palmer teaches that HMDS chambers are conventionally operated at 6 Torr. (0.75 Kpa).

Also, Mellet (col. 2, lines 20-45) teaches the factors that must be taken into account when operating a vaporizer, which include the pressure in the downstream processing chamber. It would have been prima facie obvious to optimize the process variables such as pressure and flow rate in the prior art vaporizer of applicants' Fig. 1 by taking into account the factors specifically taught by Mellet, particularly the downstream process chamber pressure as taught by Mellet.

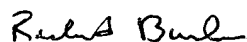
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Bueker whose telephone number is (571) 272-1431. The examiner can normally be reached on 9 AM - 5:30 PM, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (571) 272-1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1763

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Richard Bueker
Primary Examiner
Art Unit 1763